Washington Geographic Information Council

Planning a Geographic Information Infrastructure --
A Strategy for Using GIS Technology
in Support of Washington's Quality of Life

The Vision Statement

The citizens and businesses of the State of Washington -- as well as the public agencies and other organizations which serve them -- will energetically and creatively build a statewide infrastructure of Geographic Information and resources. They will utilize statewide investments in readily-accessible, high-quality, Geographic Information to:

- Improve the effectiveness of public sector services to constituents,
- Maintain Washington's quality of life by supporting human resource services, economic development and a responsive infrastructure of transportation, housing and facilities,
- Preserve the diversity of our natural heritage through more effective management of our natural resources, and
- Promote increased awareness of geography and understanding of how our actions shape the developed and natural environments.

What do we Need to Do?

Over the next few years our citizens, business and elected leaders must set courses of action to address complex and pressing problems. These include problems associated with salmon recovery, management of growth and transportation, protection of public health, and water resource management in Washington. Identification of the "right questions" to ask, and analysis of possible solutions to these inter-locked problems *must* be informed by the employment of Geographic Information technologies.

GIS technology is uniquely suited to unify seemingly separate databases on population, traffic flows, land cover and species habitat. GIS helps us to answer new questions related to *"Where?", "How dense?", "How close or far away?, "Where are the impacts felt?"* Failure to thoughtfully apply geographic analysis to the most pressing questions of our public life will limit our ability to consider reasonable options for anticipating and responding to these questions.

"GIS" **(Geographic Information Systems)** include computer equipment, programs and information, plus trained people and established practices. This combined resource can allow citizens, policy-makers, and technicians to view, inquire, and analyze combinations of information which all are tied to the same point(s) or area of our world.

Washington faces complex problems of sustaining species compromised by human activity, managing growth, and maintaining our quality of life. A cross-cutting need challenges us to fashion a strategy that can anticipate and capitalize on the promise of using GIS technology to address these problems:

- The need for more sophisticated **growth management** policies and programs is visible across Washington. We are only just beginning to learn what natural, economic, and behavior-related factors affect where growth occurs. Using data with a spatial component will help us to better understand these dynamics, and learn how to better anticipate and manage change.

- High quality spatial information is needed to help us understand the complex systems that affect threatened and **endangered species** and their habitats. Washington must assure the long-term viability of unique ecosystems, salmon, and other species, as well as our business, recreational, and other activities which impact them. Natural species span human boundaries, so we must use GIS to bridge jurisdictions and organizations in the development of regional recovery and response plans.

- Preservation and thoughtful use of Washington's **water resources** are the keys to being able to address both growth management and salmon recovery. We must be able to identify and protect drinking water supplies across the state, the water quality of all our streams and lakes, and legal rights and protections associated with each water resource.

- Washington's citizens and policy-makers need better understanding of how our **transportation** investments influence growth, and how to maximize the efficiency of public transportation. One of the greatest operating costs for our communities lies in the maintenance of local roads, upgrading and abandoning them as growth requires.

- Overall, great improvements in **government effectiveness** -- at the local and state levels -- can be achieved through the increased use of publicly-accessible, standardized Geographic Information. Using computer networks GIS information can be developed in partnership, and shared across the variety of public bodies which have need for the same information.

Washington will benefit by using GIS to define better solutions for these problems, while at the same time supporting our communities, maximizing the return on our information technology investments, and providing better services to citizens.

Building a Geographic Information Infrastructure for Washington

Geographic Information users in Washington's State have worked with federal agencies, neighboring states, and our peers to define and adopt emerging national GIS standards and "best practices." We have made progress in defining statewide standards and practices relating to property ownership. We have developed partnerships for data development, and created a central clearinghouse of information about our Geographic data assets. We have made a good start.

But the problems of achieving our vision for GIS are becoming more complex. The risks of failing to determine our own strategic solutions to them are growing. It is time for the State of Washington – led by policy-makers and information technology users – to create a **Geographic Information Infrastructure** .

The success of our strategy requires that we assure availability of specific information resources crucial to addressing key quality of life and other related problems. We need to inventory the land use and land cover types (natural or developed) of our state, so we can understand the changes that growth brings. We need better GIS resources to understand the impacts of fish passage barriers, and how our farming practices impact the viability of vulnerable species.

> Nearly five years ago President Clinton called for the establishment of a coordinated **National Spatial Data Infrastructure (NSDI)** "to support public and private sector applications of Geographic data in such areas as transportation, community development, agriculture, emergency response, environmental management and information technology." -- Executive Order 12906 *"Coordinating Geographic Data,"* April 1994.

Some information sources necessary for these and other GIS applications are well-defined. For other applications we must better determine the nature of some needed data. In both cases, Washington's needs to address the relevant legal, fiscal, technical, and organizational hurdles to obtaining essential new Geographic databases.

Further, we must use our GIS resources so as to better inform public decision processes relating to key quality-of-life problems facing local governments. Routine decision-making on the part of local public agencies and commercial interests can be improved with the use of GIS capabilities. Programs of education, example, and incentive must be part of our broader strategy. Increased ease of access and widespread use to Geographic Information will generate *enormous savings and programmatic benefits* for Washington's's public agencies, business, and taxpayers.

We must gain the support of all citizens, business and public agencies by demonstrating the benefits of GIS use. If we are to do so, we must first provide more understandable information about access to our public GIS resources, and the use of GIS in addressing problems important to the public. GIS can help public agencies collect information and address common public problems and needs more efficiently. We need to develop new institutional models for creating partnerships across jurisdictions. We must develop the technical and business-related standards and procedures needed to assure the data can be shared.

Broad-based leadership and participation will be required if our strategy is to produce benefits. We hope the vision, goals and objectives of the strategy articulated here will be received as an invitation for every citizen, public agency, and business to become part of Washington's **Geographic Information Infrastructure** .

Statement of Goals

I. State Executive and Legislative policy-makers, public agencies [1], and citizens use Washington's growing investment in Geographic Information to address important growth-management, environmental-protection, and quality-of-life issues.

II. New efficiencies, effectiveness, and other benefits – for government, for business, and for citizens of Washington's – flow from increased reliance on cooperative partnerships to develop and use Geographic Information.

III. Policy-makers, business, and citizens increase their knowledge of Geographic Information and gain understanding of the vision and benefits of investing in a Geographic Information Infrastructure for the State of Washington, and of their access to its resources.

Statement of Objectives

FRAMEWORK DATA DEVELOPMENT – Produce essential multi-use statewide databases (property ownership, transportation, land cover, and others) through the shared efforts of public and private organizations, both local and statewide. *The availability of Framework data in all areas of the state is a necessary building block if we are to address key statewide issues related to development and resource protection. Further, they will provide the basis for many organizations to begin to use GIS to address local problems. Three activities are the focus of the Washington Framework.*

1. Develop a partnership to create a statewide Land Cover/Land Use coverage by the year 2001
2. Finish the Washington "Framework" (FW) and make it operational
3. The *Framework Management Group* should develop a funding and cost-allocation model for development, support, and distribution of Framework data

The **Washington Framework** includes basic geospatial data which are collected and maintained by many organizations in Washington state and will be organized and managed as a framework which is readily available and supports the National Spatial Data Infrastructure.

[1] "Public agencies" should be understood to include government agencies (federal, state, county, and local) which provide services within Washington, as well as tribal entities and other organizations which provide services to the public at public expense.

PARTNERSHIP GROWTH -- Expand the levels of cooperative activities and information exchange between governments, tribes and business -- particularly in the areas of Salmon Recovery, Growth Management, Buildable lands and Public Health. *Key elements of an effective approach to these issues will require close cross jurisdictional coordination, planning and monitoring. Recognizing that the appropriate spatial information will come from many jurisdictional sources - effective and long-term partnerships will be a key component to an energetic strategy for providing decision makers with meaningful, timely, spatial information. The following activities will provide a focus for creating partnership opportunities.*

4. Promote the design, development and implementation of GIS infrastructure that supports key governmental business issues like
    a. Salmon Recovery
    b. Growth Management
    c. Buildable Lands, and
    d. Public Lands Inventory
5. Identify the data needed to address the key governmental business issues (described in Objective 4) by May of 1999.
6. Develop a workgroup which would collect key environmental data (quick and efficient)
7. Identify sources of funding for Technical Assistance and startup grants for local governments and community agencies (schools, health, etc.)

IMPROVED DATA SHARING -- Develop Standards, Guidelines, and Procedures which increase the ease and efficiency of sharing data resources with the public and among organizations responsible for addressing statewide and localized policy issues. *Primary benefits of GIS use will be found in the savings which arise from sharing costly data sets, and from the improved analysis and decision capabilities that shared data resources can support. Activities which will result in improved data sharing include the following.*

8. The *Framework Management Group* and *WAGIC Standards Work Group* should develop and implement standards or guidelines that serve as targets for the GIS community:
    a. Data Stewardship Policy
    b. Environmental Habitat Data Standards
    c. Spatial Metadata
    d. Data Dissemination & Coordination
    e. Minimum requirements for linking data to the Framework
9. *WAGIC Standards Working Group* should develop draft standards for one of the following in 1999 (in coordination with FW efforts):
    a. Property information
    b. Zoning information
    c. Digital permit submittals

SUPPORT FOR ENABLING TECHNOLOGIES -- Ensure establishment and maintenance of key technology infrastructure components. *Washington GIS users need a reliable technology foundation which supports easy discovery of and access to*

the shared spatial data resources necessary to address important business and policy questions. Two particular activities which address this objective.

10. The *DIS Strategic Initiatives Group* should conduct a study of network infrastructure needs for GIS in Washington by July 1999 for all levels of government.
11. *WAGIC* budget should increase and *DIS* should staff the Washington GIS Clearinghouse and metadata efforts by the (calendar) year 2000.

POLICY REVIEW & ADVOCACY – Ensure GIS awareness across a range of public policy and decision-making settings. *GIS technology is being adopted by a wide variety of organizations and programs; they often depend upon the same data investments, and can share the benefits of assuring that their needs are presented and addressed in a coordinated way. Several policy-related activities support this objectives.*

12. Develop executive advocates for Framework data proposals going before the '99 Legislative Session, working with DIS, OFM, DOT, DOH and local jurisdictions.
13. Solicit local participant(s) along with CTED, DFW, DIS, IAC to prepare a presentation to '99 legislative committees on the power of GIS.
14. Current state authorities for mapping should be reviewed/revised by 2000.
15. DIS should review its IT planning processes to assure IT plans include spatial data components and enabling infrastructures.

GIS LEADERSHIP – Provide strategic leadership and statewide coordination through the efforts of a Geographic Information Council. *Ongoing and expanded GIS leadership will assure a continued strategic focus to growing GIS use across Washington – on the development of partnerships, the sharing of standardized data, and the usefulness of this technology in analyzing and solving important problems of resource protection and compatible development. The following actions will advance GIS leadership.*

16. Create a process for identifying GIS leadership in Washington, including: Legislative sanction or recognized by the governor, an organization that would work for various jurisdictions in the GIS community, take lead in coordination and communication activities, and a Consensus process
17. Developing, get approved and make available a standard data sharing agreement with the *AG's Office* by the end of 1999.
18. *WAGIC* should create a Policy Workgroup tasked with creating policy that addresses the role of Land Surveyors relative to GIS and review of state public disclosure law and drafting of amendments re special needs of GIS
19. *WAGIC* should continue to expand its leadership role and attract new members - strengthen Eastside relations.
20. Devise methods of determining data development and application developments efforts to allow partnering to occur; (e.g., avoid duplication).

INFORMATION EXCHANGE & EDUCATION – Foster exchange of information and skills within the GIS community, and outreach to public schools, citizens, business, and government. *Organizations using GIS are often faced with the need to solve the same*

technical problems, and to share information about the needs and activities of others. Other organizations not using GIS may find this technology very valuable in addressing specific quality-of-life, resource protection, or development questions. Numerous steps can be taken to improve the exchange of information among these groups.

21. *WAGIC* should expand its Website to include:
    a. Contact list by topic
    b. Resources (software, hardware, data) by agency
    c. FTP Internet services
    d. Mission statements of Workgroups
    e. Products and Activities.
22. Develop a coordinated education plan that promotes the knowledge and understanding of the value of GIS and opportunities for GIS cooperative partnerships.
23. Promote information exchange on the following activities:
    a. Metadata tools
    b. Temporal GIS
    c. IT Integration, and
    d. Software product reviews.
24. Explore mechanisms for mentoring entities doing GIS Startup.
25. Educate GIS community in (legislative process) gaining funding.
26. Enlist prominent members of the Washington State higher education and vendor community to conduct GIS research and development activities.

ACRONYMS

AG	(WA) Attorney General
CREP	Conservation Reserve Enhancement Program
CTED	(WA) Department of Community, Trade and Economic Development
DFW	(WA) Department of Fish & Wildlife
DIS	(WA) Department of Information Services
DNR	(WA) Department of Natural Resources
DOH	(WA) Department of Health
DOT	(WA) Department of Transportation
FGDC	Federal Geographic Data Committee
FTP	Internet File Transfer Protocol
GIS	Geographic Information Systems
IAC	Interagency Committee for Outdoor Recreation
NMD	National Mapping Division (US Geological Survey)
NSDI	National Spatial Data Infrastructure
OFM	(WA) Office of Financial Management
TFW	Timber, Fish & Wildlife
WAGIC	(WA) Geographic Information Council